

REMARKS

This is a response to the final Office action that was issued on June 28, 2006 for the above-identified patent application. Prior to entry of this response, claims 1-18, 20-47, and 49-86 were pending, with claims 18, 23, 28-34, 59, and 65-71 withdrawn from consideration and the remaining claims rejected under 35 U.S.C. § 103 as being obvious over either of GB 2,283,235 to Collins (“Collins”) or U.S. Patent No. 6,572,837 to Holland et al. (“Holland et al.”). Applicant has studied the cited references in view of the pending claims and in view of the reasons expressed by the Examiner in the Office action. Applicant understands that the Section 102(b) rejections from the third Office action have been withdrawn in view of Applicant’s prior amendments to more clearly recite an odorant that has a distinct odor from the carbon-containing feedstock in the feed stream for the hydrogen-producing fuel processor. From the fourth Office action, Applicant also understands that the Examiner has maintained the Section 103 rejections because the recited odorant-containing feed stream is not positively recited.

Applicant thanks the Examiner for her detailed comments in the Office action, now the fourth to be issued for the present application. Applicant especially thanks the Examiner for taking the time to suggest the above amendments to the claims to patentably distinguish the cited references. In the above amendments, claims 1 and 35 are amended to more positively recite the odorant-containing feed stream, as instructed by the Examiner on pages 4 and 6 of the Office action. Applicant submits that the subject matter of the claims has not been altered, and that no new matter or additional elements have been added to the claims. Because the feed stream was recited in the previously

pending claims, Applicant submits that the present amendments should not require an additional search. Accordingly, Applicant requests entry of the above amendments and reconsideration of the Section 103 rejections issued in the Office action.

Amended claim 1 is represented below for the Examiner's convenience.

1. (Currently Amended) A fuel processing system, comprising:

~~a fuel processor adapted to produce a product hydrogen stream containing hydrogen gas from a feed stream containing a carbon-containing feedstock, water and an odorant, wherein the odorant has a different composition than the carbon-containing feedstock, imparts to the feed stream an odor distinct from the carbon-containing feedstock, and is at least substantially free from sulfur compounds;~~

a fuel processor adapted to produce a product hydrogen stream containing hydrogen gas from the feed stream;

at least one reforming catalyst bed within the fuel processor and adapted to produce a mixed gas stream containing hydrogen gas and other gases from the feed stream; and

a separation region within the fuel processor and adapted to receive the mixed gas stream and to separate the mixed gas stream into a hydrogen-rich stream containing at least substantially hydrogen gas and a byproduct stream containing at least a substantial portion of the other gases, and further wherein the product hydrogen stream is formed from the hydrogen-rich stream.

As discussed above, amended claim 1 now positively recites that the fuel processing system includes a feed stream, and a fuel processor that includes at least one hydrogen-producing reforming catalyst bed and a separation region. The feed stream includes a carbon-containing feedstock, water, and an odorant that has a different composition than the carbon-containing feedstock, imparts an odor that is distinct from the carbon-containing feedstock, and is at least substantially free of sulfur compounds.

Applicant agrees with the Examiner that the cited references both disclose hydrogen-producing fuel processors. However, as recognized by the Examiner in the prior Office actions, the cited references fail to disclose or suggest a feed stream that

includes water, a carbon-containing feedstock, and an odorant, much less the odorant recited in amended claim 1. Applicant understands that the cited references were believed to render claim 1 obvious because claim 1 did not positively recite the odorant-containing feed stream, and therefore it was argued that the cited references could be used with such a feed stream. As discussed above, claim 1 has been amended to positively recite, or require, the feed stream. In view of this clarification, Applicant requests reconsideration and withdrawal of the rejections of amended claim 1. For the purpose of brevity, Applicant is not repeating each of the previously presented reasons from Applicant's response to the third Office action why the cited references fail to disclose or suggest the recited odorant-containing feed stream. However, these reasons are incorporated herein by reference should there be any remaining question as to the patentability of amended claim 1 over the cited references.

Claims 2-18 and 20-34 depend directly or indirectly from amended claim 1 and therefore should be allowable when amended claim 1 is allowed. Applicant reiterates the previously expressed additional reasons why several of these dependent claims, namely, claims 14 and 21, further patentably distinguish the cited references.

Amended claim 35 is reproduced below for the Examiner's convenience and recites:

35. (Currently Amended) In a fuel processing system containing a fuel processor ~~adapted to produce a product hydrogen stream comprising hydrogen gas from a feed stream comprising a carbon-containing feedstock that is a liquid at 25 degrees Celsius and 1 atmosphere pressure, and a fuel processor adapted to produce a product hydrogen stream comprising hydrogen gas,~~ the improvement comprising: the feed stream further comprising an odorant comprising an organic amine having at least one amine functional group and a strong and detectable odor distinct from the carbon-containing feedstock.

Similar to claim 1, claim 35 has been amended to positively recite the odorant-containing feed stream from which hydrogen gas is produced by the fuel processing system. Accordingly, Applicant submits that claim 35 should be allowable for reasons analogous to those presented above with respect to the odorant of amended claim 1. Amended claim 35 also positively recites that the feed stream is a liquid feed stream (at STP) and includes at least one organic amine having at least one amine functional group. As discussed in detail in Applicant's response to the third Office action (which is incorporated herein by reference), the cited references fail to disclose any form of odorant-containing liquid feed stream, much less a feed stream containing an odorant with at least one amine functional group. Accordingly, and in view of the present amendment to claim 35 to comply with the Examiner's requirement that the feed stream be positively recited, Applicant requests withdrawal of the rejections of amended claim 35.

Claims 36-47, 49-64, and 79-80 depend directly or indirectly from amended claim 35 and therefore should be allowed when claim 35 is allowed.

Claim 81 was added in Applicant's response to the third Office action. Claim 81 is reproduced below for the Examiner's convenience.

81. (Previously Presented) A fuel processing system, comprising:

a feed stream comprising:
water,

a carbon-containing feedstock comprising a hydrocarbon or an alcohol, the carbon-containing feedstock being colorless and liquid at 25 degrees Celsius and 1 atmosphere pressure; and

an organic amine additive having at least one amine functional group and a boiling point less than approximately 300 degrees Celsius for imparting a characteristic odor distinct from the carbon-containing feedstock;

a fuel processor adapted to produce a product hydrogen stream containing hydrogen gas from the feed stream;

at least one reforming catalyst bed within the fuel processor adapted to produce a mixed gas stream containing hydrogen gas and other gases from the feed stream; and

a separation region within the fuel processor and adapted to receive the mixed gas stream and to separate the mixed gas stream into a hydrogen-rich stream containing at least substantially hydrogen gas and a byproduct stream containing at least a substantial portion of the other gases, and further wherein the product hydrogen stream is formed from the hydrogen-rich stream.

Applicant requests reconsideration of the Section 103 rejections of claim 81 because claim 81 already positively recites a fuel processing system with an odorant-containing feed stream and a hydrogen-producing fuel processor. Claim 81 specifically recites that the feed stream includes water, a carbon-containing feedstock that is liquid at STP, and an odorant in the form of an organic amine additive that imparts an odor to the feed stream that is distinct from the carbon-containing feedstock. Applicant submits that claim 81 patentably distinguishes the cited references for at least the above-discussed reasons relating to the failure of the references to disclose or suggest a hydrogen-producing fuel processing system with a feed stream that contains a carbon-containing feedstock and a distinct odorant additive, in addition to the more specific reasons expressed with respect to amine odorants and odorless carbon-containing feedstocks.

Claims 82-86 recite additional subject matter relating to the fuel processing system of claim 81. Claims 82-86 depend from claim 81 and therefore should be allowed when claim 81 is allowed.

With the entry of the above amendments, and for the reasons discussed herein, Applicant submits that all of the issues raised in the Office action have been addressed and overcome. If there are any remaining issues, or if the Examiner has any questions, Applicant expressly requests a telephone interview with the Examiner so that any such questions or remaining issues may be discussed and hopefully resolved without requiring a further Office action and response.

Respectfully submitted,

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